Lesson 9: Nutrient Analysis

Lesson 9

Nutrient Analysis

Slide 1

Overview

Nutrient analysis can be very simple when you have considered good menu planning techniques and use one of the USDA-approved nutrient analysis software programs. The software programs analyze both recipes and menus.

Overview of Recipe Development and Recipe Analysis

School Food Service Software System

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Recipe Nutrient Analysis

Recipe Analysis Capabilities

- Access, search, retrieve and/or edit
- List all recipes
- List recipes with corresponding data
- List nutrient composition of each ingredient
- Sort recipes by food category
- Sort recipes by ingredient
- Search
- Adjust yield

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Recipe Nutrient Analysis Capabilities

1. Access, search, retrieve and/or edit existing recipes in the local recipe file.
2. List all file recipes.
3. List recipes with corresponding data: Includes recipe number, name, ingredient, amount of ingredient, yield, portion size, etc.

Notes

1 Interest Building Strategy/Set

In Lesson 7: ABCs of Menu Planning, you planned menus that you **think** will be healthy and meet the nutritional requirements for healthy meals. You considered all of the Dietary Guidelines for Americans and the menu planning ABCs. But how do you know whether your menu meets the Nutrient Standards?

2 Review Competencies

3 Purpose

The purpose of this lesson is to show you how a nutrient analysis of recipes and menus is done. For those selecting NuMenus, you must be able to do the analysis accurately yourself. For those selecting Assisted NuMenus, you must understand well enough to confirm the work of your outside consultant. For those selecting Food Based Menus, you will want to understand well enough to follow the analysis and findings of the reviewing state agency.

4 Transfer

None

5 Instruction

4. List the nutrient composition of each food ingredient.
5. Sort recipes by food category such as Bread and Cereal Products, Soups, Sandwiches, Salad Dressings, etc.
6. List recipes by ingredients, i.e., commodities.
7. Search for previously created recipes by recipe code number, recipe category and recipe name.
8. Adjust recipe yields.

   For example: The recipe yield is 100 servings; if the servings are adjusted to 200 servings, the computer will calculate the amount/measures of food ingredients required to produce 200 servings.

USDA Quantity Recipes for School Food Service

If you are using one of the USDA ***Quantity Recipes for School Food Service*** and make any preparation or ingredient changes you must create and analyze a new recipe and add it to the local database. This includes using alternate and optional ingredients and some variations.

Variations

For example:

Recipe B-4 Baking Powder Biscuits

Lists three variations:

1. B-4a Baking Powder Biscuits using Master Mix
2. B-4b Cheese Biscuits
3. B-4c Drop Biscuits

Remember, when you use optional or alternate ingredients of the USDA recipes, you must create a new recipe and analyze the nutrient content of the recipe and add it to the local database.

Adding a Recipe to the Local Database for Nutrient Analysis

You will be able to create new recipes and enter local school recipes into the local database recipe file.

Your USDA-approved school food service software program will have the capabilities to add a recipe to the local database. You must follow the software directions. Regardless of which software you use, all of these steps are needed to add a recipe to the local database.

Notes

Steps to Create a New Recipe

Notes

Create a New Recipe

1. Enter recipe category, code number and name
2. Serving recipe yield
3. Serving size
4. Serving description
5. "Look up" food ingredients

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1. Enter recipe category, code number and name.
2. Enter recipe yield or number of servings (i.e., 100 servings).
3. Enter type of serving (i.e., cups).
4. Enter serving size or description (i.e., 4-oz. ladle, # 16 scoop).
5. View the food ingredients listed in the database. Select the correct food item and amount from the database that corresponds with the food ingredient in the recipe.

Create a New Recipe

6. Use Yield Factor method
7. Enter preparation directions
8. Save recipe to local database
9. Complete a nutrient analysis
10. Print the recipe, instructions and nutrient analysis

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6. The Yield Factor Method for recipe development will be used for all standardized recipes. This requires that each recipe ingredient be entered as ready to serve or cooked and the amount of each ingredient calculated as a yield from the ***as purchased*** or raw weight, using the USDA ***Food Buying Guide***.

Example:

1 lb. dry macaroni **as purchased**	=	9.75 cups cooked
1 lb. raw ground beef **as purchased**	=	.73 lb. cooked

7. Enter preparation directions.
8. Save the recipe to the local database recipe file.
9. Complete a nutrient analysis. Review each ingredient nutrient composition in the recipe. The

6 Guided Practice
Appendix A: Demonstration
Recipe Variations
Add Beef Stir Fry Variation as a new recipe

6 Guided Practice
Appendix B: Demonstration
Adding Recipes to the Local Database
Add Spaghetti Sauce recipes to the local database

6 Guided Practice
Appendix C: Demonstration
Create Recipes for Purchased Foods
Demonstrate on the computer the steps to create recipes in the local database for:
1. Chicken nuggets
2. Cake mix

Activity: Review with a partner and then name the ten steps to create a recipe.

following nutrients will be calculated for each recipe:

- Calories
- Protein
- Total fat
- Carbohydrate
- Saturated fat
- Vitamin A
- Vitamin C
- Iron
- Calcium
- Percentage of calories from carbohydrate
- Percentage of calories from fat
- Percentage of calories from protein
- Percentage of calories from saturated fat
- Cholesterol
- Sodium
- Dietary fiber

10. Print the recipe, preparation instructions, and nutrient analysis.

Steps to Create a Recipe Variation

When recipes are changed, you need to create and save a new recipe. When changing a local database recipe, you may change the original recipe and then rename and save it. With a USDA recipe, you follow the same steps to create a new recipe, except you will name and save it as a different recipe.

Updating Local Recipe Data

When new recipes are created and saved to the recipe file, you can:

1. Change, add or delete food ingredients and amounts.
2. Change serving preparation and instructions.

Notes

6 Guided Practice

Appendix D: Demonstration Theme Bars

Demonstrate on the computer the steps to create recipes for:

1. Salad Bar
2. Pasta Bar

7 Individual Practice

Appendix E: Computer Exercise

Students may practice entering recipes into the local database.

- Coleslaw
- Fish Sticks
- Muffin Mix
- Potato Bar

Creating a Theme Bar Recipe for NuMenus

Notes

Theme Bars

Calculating the nutrient analysis of
salad bar, potato bar, deli bar, pasta bar:

- Plan the theme bars
  - – Portion size
  - – Projected servings
  - – Projected feeding figure
- Calculate the nutrient analysis of the theme bar as a recipe
  - – Store for future use
  - – Reanalyze when changed
- Plan several variations of theme bars

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Steps for calculating the nutrient analysis of the theme bar are basically the same as for a recipe:

1. Save the nutrient analysis of the theme bar as a **recipe** in the local database. This allows the school district to analyze the theme bar only once, except when the ingredients change. Then you must enter another recipe.
2. Retrieve the nutritional analysis of the theme bar from the local recipe file and make adjustments as needed, when the theme bar is on the menu.

Common Data Entry Errors

Common Errors
Data Entry of Recipes

- Incorrect food item selected from database
- Measurements wrong
- Raw weight as purchased weights used for cooked foods
- Standardized recipes not used

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Reminders:

- Carefully select the current food item from the database.
- Choose the correct measurement, such as liquid or weight.
- Use cooked weight for cooked foods.
- Only use standardized recipes.

Notes

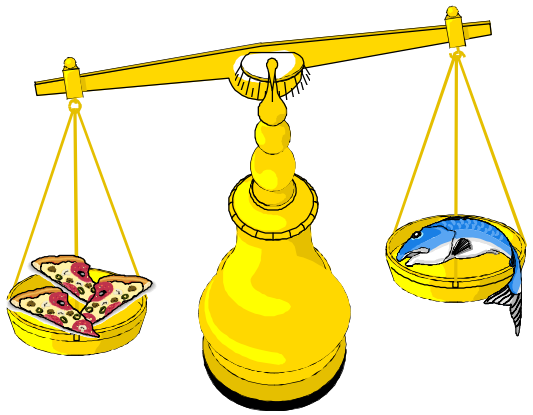
Menu Nutrient Analysis

Weighted Analysis

To accurately analyze the nutritional composition of meals selected by students for the National School Lunch and School Breakfast Program, regardless of the menu option, the nutrient analysis of the meals must be based on weighted averages.

The nutrient analysis software program will compute the average nutritional composition of the meal for one day and one week. In addition, the software will compute the percentage of calories from protein, carbohydrate and fat based on the average nutritional composition of the meal for one day and one week.

Weighted Nutrient Analysis



Most frequently selected menu items provide a larger proportion of nutrients

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The weighted nutrient analysis methodology gives more weight to the nutrients in popular foods that may be frequently selected from a choice or Offer versus Serve menu. This allows for a greater contribution of nutrients to come from those foods frequently selected. Menu items that are less popular and selected by fewer students will contribute fewer nutrients to the meal.

Weighted Nutrient Analysis
Data Necessary

- Portion size
- Projected production numbers
- Total reimbursable meals

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The calculation method for computing a weighted nutrient analysis will require the planner to **enter for each menu item:**

- Portion size
- Projected servings of each menu item
- Total feeding figure for each day for a weekly menu.

Note: Only reimbursable meals are included for nutrient analysis; therefore, the projected servings and total feeding figure must not include à la carte sales.

Nutritional Analysis Based on Averages			
Item	**Actual Servings Planned**	**Data Entry Servings Planned**	**Nutrient Composition**
Pizza	200	100	33.3%
Baked chicken	50	100	33.3%
Chef's salad	50	100	33.3%
Total	300	300	100%

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Weighted Nutrient Analysis			
Item	**Actual Servings Planned**	**Data Entry Servings Planned**	**Nutrient Composition**
Pizza	200	200	66.7%
Baked chicken	50	50	16.7%
Chef's salad	50	50	16.7%
Total	300	300	100%

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Notes

Process Approach to Menu Planning

Process Approach to Menu Planning

1. Plan menu on paper
2. Review products and recipes not in NNDCNP or local database
3. Enter new recipes and processed foods into local database (save)
4. Establish school/site, ID, age/grade categories
5. Enter daily lunch menu with portions and projected servings

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Process Approach to Menu Planning

6. Enter daily breakfast menu with portions and projected servings
7. Total nutrient analysis
8. Evaluate
9. Adjust to meet Nutrient Standards
10. Print report
11. Provide nutrition disclosure

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Entering Menu Plans for Analysis and Compliance to Nutrient Standards

1) Enter Specific Menu Plan Data.

Site

The site refers to the group for which the menu is being planned. It may be a school or a group of schools with the same menu:

- XUSD Elementary Schools
- Lincoln Elementary School

Date

The date of the menu is entered to identify the menu for future reference.

Menu or Meal Type

The type of meal to be planned must be entered because there are specific program requirements for each meal:

Notes

- Lunch
- Breakfast

Cycle

A cycle may be one or as many as eight or more weeks. A cycle is a series of menus that are repeated. Cycles may be planned for a season, or for a year:

- Fall Cycle, Number 2, Weeks 1-4
- Elementary Cycle, Weeks 1-5

Week

A week for nutrient analysis purposes is 3-7 consecutive days. If there are fewer than three consecutive days in a week, the days in that week are combined with the coming or the prior week for analysis.

Grade or Age Group

The required grade group or the optional age range is entered to identify which Nutrient Standard will be used as the yardstick to measure success, such as:

- Grades K-6
- Grades 7-12
- Grades K-3
- Ages 7-10
- Ages 11-13

Default Nutrients

If the software offers nutritional analysis of more than the required nutrients and dietary components, set the following required nutrients and dietary components to be analyzed:

- Calories
- Total fat
- Saturated fat
- Protein
- Calcium
- Iron
- Vitamin A
- Vitamin C
- Cholesterol
- Dietary fiber
- Sodium

Carbohydrate should also be specified, but is not required. It is included in most USDA-approved software.

Feeding Figure

The feeding figure is the total number of reimbursable meals which are projected to be served, such as:

- 500 Breakfast
- 1,000 Lunch

Notes

A week is from Sunday to Saturday.

2) Enter Each Menu Plan.

Food Codes

The food code is the numbers or letters assigned to each food and menu item in the NNDCNP or the local database. Many software systems will also allow the menu planner to enter the name of the food or menu item and the software will **search** for similar foods and allow the menu planner to select the correct item:

- 1082 1% lowfat milk
- 8020 Corn Flakes cereal

Portion Size

The portion size must be specified for every food item and menu item. It must relate to the portion sizes available for the food item or menu item in the nutrient analysis software system:

- 1% lowfat milk, 8 fl. oz.
- Corn Flakes cereal, 1 oz.

Projected Servings

The projected servings are the projected production or servings for each menu item. This information is available from historical menu production records, or other methods of retrieving this information may be used:

- 200 cheese pizza
- 400 baked chicken/rice
- 300 green salad
- 100 green beans
- 400 carrot sticks

3) Perform Nutrient Analysis of Menus to Obtain Weekly Averages and Compliance to the Nutrient Standard.

Site

Specify the site number as assigned by the school food authority.

Date Range

The date range is the range of dates from the first day of the menu analysis week through the last day of the menu analysis week:

- 9/9/96 - 9/13/96
- 9/16/96 - 0/20/96

Meal Type

Specify the meal type.

Notes

4) Evaluate and Update the Menu Plan to Achieve the Nutrient Standard Goals.

- Replace a food on the menu plan
- Add a food to the menu plan

5) Print Menu Plan Reports.

- Nutritional analysis
- Meals percentage report
- Menu
- Nutritional composition of menu items
- Missing records

Common Errors
Data Entry of Menus

- Incorrect food item selected from database
- Portion sizes wrong
- Condiments, salad dressings and added fat are not entered as menu items
- Menu item left off of the nutrient analysis, i.e., bun for hamburger

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Key Steps to Modifying Menus

Key Action Steps

As we adjust menus, we need to ensure healthy, attractive, tasty and acceptable school meals.

- Plan menus
- Purchase food
- Modify recipes
- Use good preparation techniques
- Get students to consume the meals!!

Modifying Menus

- Plan menus
- Purchase food
- Modify recipes and preparation techniques
- Get students to consume the meals!!

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Plan Menus

If you find that your weekly menu analysis does not meet the nutritional goals, look at the frequency, portion

Notes

6 Guided Practice
Appendix F: Demonstration
Analyze and adjust a NuMenus weekly lunch menu.

Appendix G: Demonstration
Analyze and adjust a NuMenus weekly breakfast menu.

size, balance of foods and/or nutrient source list to modify the menu.

Notes

Evaluate the nutrient analysis of your menus.

Evaluate how well your current menu meets the Nutrient Standard. This will help to determine what if any changes must be made to meet the Nutrient Standard.

- How do your menus compare to the Nutrient Standards? What areas need changes? Which areas are okay?
- Are you serving menus that are too high in fat or saturated fat?
- Are your menus low in iron or vitamins A and C?

Frequency

The **frequency** with which a particular food or type of food is selected will affect the nutrient content of your menu.

- Can you increase the total number of lowfat or unsaturated fat food or menu items?
- Can you decrease the total number of high fat items?
- Do you have too many high sodium items?
- Too few high vitamin A foods in a week?
- Can a popular high fat item be served fewer times in a cycle or week?

Portion Size

After making adjustments to how often foods are served, recheck the nutrient analysis. If there are still discrepancies, look at the **portion size** of problem foods next.

- Can you continue to include a popular food that may be contributing too much fat, saturated fat or calories in a smaller quantity rather than eliminate it?
- Can the quantity of a high fat ingredient in a menu item be changed or reduced?
- Do you need to increase the portion size to provide the nutrients to meet the Nutrient Standard?

Balance

Next, look at the **balance** of foods within each day and the week.

- Do you have too many high fat or high **calorie** foods in the same day?
- Do you have too many high fat or highly **saturated fat** foods in the same week?
- Can you balance a high fat entree with **lowfat side dishes**?
- Can you balance a high fat entree with other lowfat entrees within the **week**?

Nutrient Food Source List

If you still have not met the nutritional goals, look at the ***Nutrient Food Source List*** in the software program and find ideas for foods containing the nutrients which are lacking or in excess.

- Adjust menus when the weekly average for a nutrient exceeds or fails to meet the nutrient standard.
- A nutrient amount is listed by serving size for each food.
- The number of servings you project to serve will affect the total amount of nutrients contributed by your selection.
- A range is given for foods which are available in several processed or cooked forms. However, the serving size used for the breakfasts and lunches does not need to be limited to that given in the lists.
- These lists will suggest foods that might be added or substituted in menus in order to increase the amount of a nutrient found to be below the nutrient standard in the week's breakfast or lunch. For example, you may print a list of foods containing less than 100 calories, or foods containing at least two milligrams of iron.

Be sure when replacing a food that the levels of all nutrients in the standard are maintained. After deciding which foods to add to the menu, nutrient values need to be recalculated and compared to the Nutrient Standard.

Purchased Products

- Which menu items are so popular that the daily menu can be adjusted to add a new or modified menu item without affecting participation?
- What items are most popular and will create the greatest impact if their nutrient profile is improved?
- Which products are available on the market and which will require developmental time?
- How can costs be held firm or be decreased when changes are made?

Modify Recipes and Preparation Techniques

By now, hopefully your students have learned to accept modified versions of their old favorites. Try to transfer those newly acquired tastes for healthy foods to new menu items.

- Modify current recipes.
- Introduce new recipes gradually.
- What new recipes are needed?

Notes

Get Students to Consume the Meal!

As has been mentioned throughout this training, food that is not selected and consumed by students does not contribute to the nutrients consumed by healthy children. We must plan and prepare enticing menus and then educate students and parents on their value as well as merchandise and promote our healthy choices. Tips on how to merchandise and promote healthy school meals will be covered in Lesson 10: Marketing Healthy School Meals.

As you make these changes, remember that your chance for success is greatest if change occurs gradually. You may not meet the Nutrient Standard and the Dietary Guidelines on your first set of menus. The important issue is that you keep working toward the goals. It is small modifications over time that will be most effective.

- Who will the changes affect?
- How can you get the people affected involved in initiating the changes?
- How will student and staff involvement in the change process increase acceptance and success?

Adjusting Future Menus

Adjusting Future Menus

- Adjust projected servings
- Evaluate nutrient analysis
- Modify current menus and products
- Introduce new menu items and products
- Encourage healthy food choices

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You have now planned a menu and analyzed it. You may use the menu again for a future menu cycle, but you need to adjust the new cycle including any changes in projected production. To know whether you need to adjust your projected production, record actual numbers of menu items served. That information will be available to you on your menu production record for future forecasting. You may also design other methods to collect the data.

Combined Breakfast and Lunch Analysis

As an option, a school food authority may combine the analysis of the National School Lunch and School Breakfast Programs. The analysis must be proportionate to the levels of participation in the two programs. The Food and Consumer Service has developed a methodology for calculating the nutrient value of a combined breakfast and lunch meal using a weighted nutrient analysis. A worksheet

Notes

6 Guided Practice

Using T-1, Appendix I: Calculating the Nutrient Value of a Combined Breakfast and Lunch and Appendix J: Combined Analysis of Breakfast and Lunch, take participants through the steps for a combined nutrient analysis. See the Instructor Key for an example using the menus just analyzed.

has been designed to provide a "step-by-step" approach for calculating a combined breakfast and lunch nutrient analysis on paper. The worksheet is in Appendix I.

The worksheet may be used by food service staff utilizing the NuMenus or Assisted NuMenus options, if they desire one complete and combined analysis of their school breakfast and lunch menus. The key components of an accurate calculation require that the RDA Nutrient Standard and the analyzed nutrient values of a menu for breakfast and lunch are both weighted by the meal participation rates in your program.

Steps

Develop a Weighted Combined Nutrient Standard

1. Specify grade/age group.
2. Specify correct Nutrient Standards.
3. Specify feeding figures for breakfast and lunch.
4. Determine meal participation rate percentages.
5. Weight each nutrient value.
   Multiply each Nutrient Standard value by the reimbursable meal rate percentage for that meal.
6. Add each weighted nutrient together.

Develop a Weighted Combined Nutrient Analysis

7. Analyze the breakfast and lunch menus.
8. Multiply each nutrient value by the meal participation percentage for that meal.
9. Add each weighted nutrient from the analysis together.

Evaluate and Adjust

10. Compare the weighted nutrient analysis of the combined breakfast and lunch to the weighted Nutrient Standard.
11. Adjust as needed.

Notes

7 Individual Practice
Computer Exercises
Appendix H: Food Based Menu
Analyze and adjust the Food Based Menus provided.

8 Closure
Review competencies.
Review Appendix K: Checklist for Accurate Computer Analysis.

9 Back on the Job...
An accurate analysis is critical to the success of NuMenus and Assisted NuMenus. It will also be important in determining how well your Food Based Menus meet the nutritional requirements. Understanding the process of weighted nutrient analysis is the key to your success with all menu systems.

Appendix A: Demonstration

Recipe Variations

A USDA Quantity Recipe provides many variations. If you substitute for any of the ingredients, you must enter a new recipe and complete a new nutrient analysis.
Activity: substitute 9 lbs of sliced beef, round top, **13192,** for skinless, boneless chicken.

Stir-Fry (Chicken, Beef or Pork)

Ingredients	50 Servings		100 Servings		For ___ Servings	Directions
	Weight	Measure	Weight	Measure		
Low sodium soy sauce 16424		1 cup		2 cups		1. Dissolve cornstarch in soy sauce. Add spices.
Cornstarch 20027	4 oz.	3/4 cup 2 Tbs.	8 oz.	1 3/4 cup		
Ground ginger 2021		1/2 tsp.		1 tsp.		
Granulated garlic 2020		3 Tbs.		6 Tbs.		
White pepper 2032		2 tsp.		1 Tbs. 1 tsp.		
Chicken stock, low sodium, non-MSG 6172		2 qt.		1 gal.		2. Heat chicken stock to a boil and slowly stir in cornstarch mixture. Return to a simmer. 3. Cook for 3-5 minutes, until thick. Remove from heat.
Fresh mixed vegetables						
Fresh broccoli 11090	5 lb. 10 oz.	2 gals	11 lb. 4 oz.	4 gals		4. Cut stems from the broccoli. Peel and slice. Chop flowerettes into bite-sized pieces. Prepare no more than 50 portions per batch.
Fresh carrots, peeled 1/4" slices 11124	5 lb. 10 oz.	1 gal. 2 cups	11 lb. 4 oz.	2 gals 1 qt.		
Onions, diced 11282	1 lb. 4 oz.	1 qt.	2 lb. 8 oz.	2 qt.		5. Sauté sliced carrots in oil for 4 minutes. Add onions, cook for one more minute. Add broccoli and cook for two more minutes. Return to steam table pan. Keep warm.
or						
Frozen mixed Oriental Vegetables	12 lb. 8 oz.	3 gals 2 qt.	25 lb.			
Vegetable oil 4623	1/2 cup			1 cup		
Skinless, boneless chicken breasts, cut 2"x2" 5063 Raw 5062	9 lb.		18 lb.			6. Sauté chicken in oil for 3-5 minutes until no signs of pink remain. Add chicken to vegetables in steamtable pan. Add sauces and mix to coat chicken and vegetables with sauce. Heat to serving temperature.

Appendix B: Demonstration

Adding Recipes to the Local Database

Spaghetti Sauce

Spaghetti Sauce	**Portion: 6 fl. oz. sauce**				
Ingredients	100 servings		_____ Servings		
	Weight	Measure	Weight	Measure	Instructions
Ground beef 13314	4.5 lbs				1. Brown and drain meats. Put meat back in pot.
Ground turkey 5306	4.5 lbs				2. Add tomatoes, paste and onion. Add water to desired consistency. Final volume = 4 2/3 gal.
Tomatoes, crushed 11966		1.5 #10			Mix all dry seasonings before adding to sauce. Any seasonings may be increased except salt.
Tomato paste 11541		1.5 #10			If tomatoes are sour, add 1 Tbs. sugar per 100 servings.
Onion, dehydrated 11284		2 cups			
Salt 2047		1/4 cup			
Oregano 2027		1/2 cup			
Basil 2003		1/4 cup			
Garlic powder 2020		3/8 cup			
Pepper 2030		1 Tbs.			

Appendix C: Demonstration

Create Recipes for Purchased Foods

Chicken Nuggets

The food manufacturer is required to submit a nutrient analysis of a food product based on an **"As Purchased"** basis when the food product requires further preparation. Cooking methods and ingredients added may vary greatly depending upon each school district's preferences. Therefore, each CNP must develop a standardized recipe for the ingredients and preparation methods to be used.
In this example, the Feathers Chicken Nuggets are provided with instructions to bake in the oven or fry in oil. Many types of oil or shortening could be used, as shown:

School	Product	Ingredients Added
A	Chicken Nuggets	Baked
B	Chicken Nuggets	Fried in soybean oil

You can guess how the nutrient analysis of this chicken product can vary depending upon ingredients added. Therefore, you will need to create a recipe for these chicken nuggets based upon the ingredients that you would use to prepare them in your school district.

Recipe A – Category: Main Dish

_____	Feathers Chicken Nuggets	20 lbs

Note: Refer to the manufacturer's data submission form for the fat and moisture changes and the weight of a serving. If the manufacturer has not provided this information, use the information provided in Appendix E, Lesson 8.
Bake nuggets at 400^0 F in a convection oven for 13 minutes.

Recipe B – Category: Main Dish

Feathers Chicken Nuggets 20 lbs
Fry nuggets in soybean oil at 370^o F for 8 minutes.

Note: Refer to the moisture/fat change charge chart in Appendix E, Lesson 8, for the amount of fat absorbed and moisture lost or gained. Calculate the weight of a serving based on 4 oz. raw chicken nuggets.

Appendix C: Demonstration

Create Recipes for Purchased Foods

Cake Mix

The food manufacturer is required to submit a nutrient analysis of a food product based on an **"As Purchased"** basis when the food product requires further preparation. Cooking methods and ingredients added may vary greatly depending upon each school district's preferences. Therefore, each CNP must develop a standardized recipe for the ingredients and preparation methods to be used.
A product such as Baker Cake Mix may be provided with instructions to add milk, eggs and oil. Several types of milk, eggs and oil may be added, for example:

	School	Product Ingredients Added
A	Cake Mix	Whole Milk, Whole Eggs, Soybean Oil
B	Cake Mix	Lowfat Milk, Frozen Eggs, Melted Butter

You can guess how the nutrient analysis of this cake product can vary depending upon ingredients added. Therefore, you will need to create a recipe for this cake mix based upon the ingredients that you would use to prepare the cake in your school district.

Recipe A – Category: Dessert Recipes

1077	Whole Milk	1 qt. plus 2 cups
1123	Whole Eggs	5
4044	Soybean Oil	1 cup
_____	Cake, dry mix	5 lbs

Recipe B – Category: Dessert Recipes

1082	Lowfat Milk (1%)	1 qt. plus 2 cups
1123	Frozen Eggs	1/2 cup
1001	Melted Butter	1 cup
_____	Cake, dry mix	5 lbs

Note: Check the moisture/fat change chart and the data submission form in Appendix E, Lesson 8, to obtain the information on serving size weights.

Appendix D: Demonstration

Theme Bars

NuMenus and weighted nutrient analysis allow for the use of various theme bars in menu planning. If the school district offers theme bars on the menu, the nutrient analyses of the bars can be stored as **recipes** in the database. This allows the school district to analyze each theme bar only once. The theme bar would only have to be reanalyzed when the ingredients change.

The method for calculating the nutrient analysis of theme bars is the same method used for completing a nutrient analysis of a recipe.

Plan the theme bars which will be used for each age group. There should be several variations of theme bars included in the database. This salad bar is served as the main course.

Salad Bar **Portion Size: 2 Cups** **Feeding Figure: 150**

Item Number	Food Code	Menu Item	Quantity	Unit of Measure
1	11252	Lettuce, Iceberg	14	Pound
2	11529	Tomato, raw, red	10	Pound
3	11205	Cucumber, raw, with peel	5	Pound
4	11124	Carrots, raw, shredded	5	Pound
5	11260	Mushrooms, raw, sliced	4	Pound
6	5287	Turkey Ham	14	Pound
7	9240	Sliced Peaches, USDA	9	Quart
8	4142	Diet French Dressing	2	Gallon
9	18429	Crackers, Wheat	700	Each

Appendix D: Demonstration

Theme Bars

Pasta Bar **Portion Size: 1 Cup** **Feeding Figure: 100**

Item Number	Food Code	Menu Item	Quantity	Unit of Measure
1	20321	Spaghetti, cooked	2	Gallon
2	20100	Rigatoni	4	Pound
3	18029	French Bread/roll, 2 oz. each	90	Servings
4		Spaghetti Sauce from recipe	100	Servings
5	1009	Cheddar Cheese	4	Pound
6	11291	Onion, green, chopped	3	Pound
7	09193	Olive, chopped	1	#10 can
8	11529	Tomato, chopped	3	Pound
9	9256	Pears, canned	4	3 #10 can
10	11252	Lettuce, chopped	3	Pound
11	4142	Salad Dressing, diet French	1	Quart
12	51037	Salad Dressing, Italian	3	Quart
13	50165	Cheese Sauce	20	Servings
14	9003	Apples, whole	50	Each
15	1077	Milk, whole	25	Cup
16	1082	Milk, lowfat (1%)	50	Cup
17	1085	Milk, skim	10	Cup
18	1104	Chocolate Milk (1%)	10	Cup
19	1001	Butter, whipped	1	Pound

Appendix E: Computer Exercise

Add These Recipes to the Local Database

Coleslaw

Portion Size: 1/2 Cup **File No. F-5**

Ingredients	**Serving**		**Directions**
	100- No. 16 scoop		
Cabbage, shredded 11109	14 lbs EP		1. Combine ingredients for dressing. Toss dressing into cabbage.
Dressing			
Mayonnaise 4025	1 qt.		
Sugar 19335	1 cup		
Vinegar 4025	1 3/4 cups		
Salt 2047	2 tsp.		
Pepper, white 2032	3/4 cup		
Dehydrated onion 11284	1/4 cup		
Pineapple coleslaw			
Add: Crushed pineapple, drained 9349	1 no. 10		

Appendix E: Computer Exercise

Create Recipes for Purchased Foods

Fish Sticks

The food manufacturer is required to submit a nutrient analysis of a food product based on an **"As Purchased"** basis when the food product requires further preparation. Cooking methods and ingredients added may vary greatly depending upon each school district's preferences. Therefore, each CNP must develop a standardized recipe for the ingredients and preparation methods to be used.
In this example, the Krunchy Lite Pollock Fish Sticks are provided with instructions to bake in the oven or fry in oil. Many types of oil or shortening could be used, as shown:

School	Product	Ingredients Added
A	Fish Sticks	Baked
B	Fish Sticks	Fried in soybean oil

You can guess how the nutrient analysis of this fish product can vary depending upon ingredients added. Therefore, you will need to create a recipe for these fish sticks based upon the ingredients that you would use to prepare them in your school district.

Recipe A – Category: Main Dish

_____ Krunchy Lite Pollock Fish Sticks 10 lbs

Note: Refer to the manufacturer's data submission form for the fat and moisture changes and the weight of a serving.*
Bake sticks at 425° F in a convection oven for 15 minutes.

Recipe B – Category: Main Dish

_____ Krunchy Lite Pollock Fish Sticks 10 lbs
Soybean Oil ___ lbs
Fry sticks in soybean oil at 400° F for 6 minutes.

*Note: Refer to the moisture/fat change chart in Appendix E, Lesson 8, for the amount of fat absorbed and moisture lost or gained. Calculate the weight of a serving based on 4 oz. raw fish sticks.

Appendix E: Computer Exercise

Create Recipes for Purchased Foods

Muffin Mix

The food manufacturer is required to submit a nutrient analysis of a food product based on an **"As Purchased"** basis when the food product requires further preparation. Cooking methods and ingredients added may vary greatly depending upon each school district's preferences. Therefore, each CNP must develop a standardized recipe for the ingredients and preparation methods to be used.
A product such as Baker Basic Muffin Mix may be provided with instructions to add milk, eggs and oil. Several types of milk, eggs and oil may be added, for example:

	School	Product	Ingredients Added
A	Muffin Mix	Whole Milk, Whole Eggs, Soybean Oil	
B	Muffin Mix	Lowfat Milk, Frozen Eggs, Oil and Applesauce	

You can guess how the nutrient analysis of this muffin product can vary depending upon the ingredients added. Therefore, you will need to create a recipe for this muffin mix based upon the ingredients that you would use to prepare the muffin in your school district.

Recipe A – Category: Bread

1077	Whole Milk	2 cups
1123	Whole Eggs	2
4044	Soybean Oil*	1 cup
_____	Muffin Mix	5 lbs

Recipe B – Category: Bread

1082	Lowfat Milk (1%)	1 qt. plus 2 cups
1123	Frozen Eggs	1/4 cup
4044	Soybean Oil*	1/2 cup
_____	Applesauce	1/2 cup
_____	Muffin Mix	5 lbs

*Note: Check the moisture/fat change chart in Appendix E, Lesson 8 and the data submission form to obtain the information on serving size weights.

Appendix E: Computer Exercise

Theme Bars

Potato Bar **Feeding Figure: 100**

Item Number	Food Code	Menu Item	Quantity	Unit of Measure
1	11674	Potato, baker, 100's, AP	50	Pound
2	11291	Onion, green, chopped	3	Pound
3	09193	Olive, chopped	3	Quart
4	11529	Tomato, diced, raw	5	Pound
5	51241	Picante Sauce	2	Quart
6	16389	Peanut granules	2	Pound
7	1179	Sour cream, light	1	Pound
8	1001	Whipped butter	1	Pound
9	50029	Roll or bread, 2 oz., wheat	125	Each
10		Spaghetti Sauce from recipe	50	Serving
11	50097	Chili/Beans	6	Quart
12	51242	Nacho Sauce	6	Quart
13	1082	Milk, lowfat (1%)	25	Cup
14	1085	Milk, skim	5	Cup
15	1104	Chocolate Milk (1%)	25	Cup
16	1077	Milk, whole	25	Cup
17	50225	Cookie, oatmeal, 1 oz.	100	Each

Appendix F: Demonstration

NuMenus Lunch Menu

Nutrient Standard – Ages 7-10

By using the computer software's ability to create any requested RDA age grouping, determine the lunch meal RDA Nutrient Standard for the nutrients and dietary components for ages 7-10.

Use this sample site to analyze the NuMenus lunch and breakfast menus to follow:

Uptown Elementary School
3535 Main Street
Uptown, BX 2345
Manager: Sharon Brown
Phone: (777) 888-9999
Site #: 1001

Appendix F: Demonstration

NuMenus Lunch Menu

This weekly lunch menu has been planned for Site 1001, Uptown Elementary, Ages 7-10. The menus are reflective of Offer versus Serve. Therefore, the projected servings of each item may or may not equal the total feeding figure. Projected servings do not include à la carte sales.

Lunch Menu	Day 1	Feeding Figure - 1,000	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	12692	Peanut Butter, USDA	2 Tbs.	350
2	19300	Jelly	1 Tbs.	350
3	18064	Wheat Bread	2 slice	350
		Tuna Sandwich, made with		
4	15121	Tuna, USDA	2 oz.	500
5	4026	Mayonnaise	1 Tbs.	500
6	11252	Lettuce	1 Leaf	500
7	11529	Tomato, raw, red	1 oz.	500
8	18351	Mixed Grain bun	1 each	500
9	9269	Pineapple Tidbits	1/2 cup	700
10	50167	Chicken Soup	8 fl. oz.	400
11	1077	Whole Milk	1 cup	25
12	1082	Lowfat Milk (1%)	1 cup	50
13	1085	Skim Milk	1 cup	25
14	1104	Chocolate Milk (1%)	1 cup	900

Lunch Menu	Day 2	Feeding Figure - 1,000	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	5278	Hot Dog, Chicken	1 frankfurter	250
2	18350	Bun	1 each	250
3	13313	Hamburger, baked, 20% fat	2 oz.	750
4	11252	Lettuce and	1/2 oz.	750
5	11529	Tomato on	1 oz.	750
6	18350	Bun	1 each	750
7	11935	Catsup Packet (1 Packet = 9 g)	9 grams	2400
8	11403	Oven Baked French Fries	2 oz.	800
9	50126	Coleslaw	1/2 cup	200
10	9003	Fresh Apple, 4 per pound	1 each	500
11	9256	Canned Pears, USDA	1/2 cup	500
12	50052	Cookie, Oatmeal	1	900
13	1077	Whole Milk	1 cup	25
14	1082	Lowfat Milk (1%)	1 cup	50
15	1085	Skim Milk	1 cup	25
16	1104	Chocolate Milk (1%)	1 cup	900

Lunch	Day 3	Feeding Figure - 1,000	Date	Site 1001

Menu				
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	10136	Baked Ham with	2 oz.	600
2	9268	Pineapple Ring	1/4 cup	600
3	20345	Steamed Rice	1/2 cup	600
4	11061	Green Beans, frozen, cooked	1/2 cup	600
5	18025	Roll	1 oz.	600
		Chef's Salad, made with		
6	5296	Turkey Roast, cooked, USDA	1/2 oz.	400
7	1042	Cheese, American	1/2 oz.	400
8	1129	Hard Boiled Egg	1/2 egg	400
9	10136	Ham	1/2 oz.	400
10	11252	Lettuce Bed	1/2 cup	400
11	11529	Tomato Wedge	1/8 cup	400
12	4114	Italian Salad Dressing	1 fl. oz.	400
13	18235	Crackers, wheat	1 each	1600
14	1077	Whole Milk	1 cup	25
15	1082	Lowfat Milk (1%)	1 cup	50
16	1085	Skim Milk	1 cup	25
17	1104	Chocolate Milk (1%)	1 cup	900

Lunch Menu	Day 4	Feeding Figure - 1,000	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	50146	Stromboli w/Tomato	1 serving	700
2	50124	Chicken Salad with	2 oz.	300
3	11252	Lettuce and	1/2 oz.	300
4	11529	Tomato on	1 oz.	300
5	18350	Bun	1 each	300
		Tossed Salad, made with		
6	11252	Lettuce	1/4 cup	500
7	11529	Tomato	1/8 cup	500
8	11000	Cucumber, raw	1 oz.	500
9	9026	Apricots, canned, USDA	1/2 cup	800
10	9181	Cantaloupe Wedge	1/2 cup	200
11	1077	Whole Milk	1 cup	25
12	1082	Lowfat Milk (1%)	1 cup	50
13	1085	Skim Milk	1 cup	25
14	1104	Chocolate Milk (1%)	1 cup	900
15	4017	Thousand Island Dressing	2 Tbs.	500

Lunch Menu	Day 5	Feeding Figure - 1,000	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	5069	Baked Chicken Drumstick	3 oz.	500
2	5007	Burrito, bean	1 each	200
3	6178	Salsa	1 Tbs.	200
4	13180	Chicken Stir-Fry	1 serving	300
5	20047	Rice, cooked	1/4 cup	400
6	11095	Broccoli, frozen, cooked	1/4 cup	600
7	9218	Tangerine, 5 per pound	1 each	700
8	18342	Roll	1 oz.	700
9	1077	Whole Milk	1 cup	25
10	1082	Lowfat Milk (1%)	1 cup	50
11	1085	Skim Milk	1 cup	25
12	1104	Chocolate Milk (1%)	1 cup	900

Appendix G: Demonstration

NuMenus Breakfast Menu

This weekly breakfast menu has been planned for Site 1001, Uptown Elementary School, Ages 7-10. The menus are reflective of Offer versus Serve. Therefore, the projected servings may or may not equal the feeding figure. Projected servings do not include à la carte sales.

Breakfast Menu	Day 1	Feeding Figure - 500	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	8020	Corn Flakes Cereal	3/4 oz.	325
2	8035	Golden Grahams Cereal	5/6 oz.	300
3	18065	Wheat Toast	1 slice	250
4	19335	Sugar Packet	1 tsp.	325
5	19300	Jelly	1 Tbs.	200
6	9003	Fresh Apple	1 each	250
7	9240	Sliced Peach Cup	1/2 cup	250
8	1001	Butter	1 tsp.	250
9	1077	Whole Milk	1 cup	25
10	1082	Lowfat Milk (1%)	1 cup	400
11	1085	Skim Milk	1 cup	25
12	1104	Chocolate Milk (1%)	1 cup	50

Breakfast Menu	Day 2	Feeding Figure - 500	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	18002	Toasted Bagel, plain, enriched 3 1/2”	Whole	150
		Cheese Toast, made with		
2	18065	Wheat Toast	1 slice	350
3	1042	Cheese, processed, American	1 oz.	350
4	9101	Fruit Cocktail	1/2 cup	250
5	9040	Petite Banana	1 fruit	250
6	1077	Whole Milk	1 cup	25
7	1082	Lowfat Milk (1%)	1 cup	400
8	1085	Skim Milk	1 cup	25
9	1104	Chocolate Milk (1%)	1 cup	50

Breakfast Menu	Day 3	Feeding Figure - 500	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	18290	Pancakes, purchased, enriched	1	500
2	19129	Syrup	1 Tbs.	500
3	5287	Turkey Ham	1 oz.	500
4	9269	Pineapple Tidbits, USDA	1/2 cup	350
5	1077	Whole Milk	1 cup	25
6	1082	Lowfat Milk (1%)	1 cup	400

7	1085	Skim Milk	1 cup	25
8	1104	Chocolate Milk (1%)	1 cup	50

Breakfast Menu	Day 4	Feeding Figure - 500	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	18274	Blueberry Muffin, purchased	2 oz.	350
2	18285	Bran Muffin, purchased	2 oz.	150
3	8065	Rice Krispies Cereal	3/4 oz.	150
4	8060	Raisin Bran Cereal	7/8 oz.	50
5	9200	Fresh Orange, 4 per pound	1 each	400
6	9402	Applesauce, w/cinnamon	1/2 cup	50
7	1077	Whole Milk	1 cup	25
8	1082	Lowfat Milk (1%)	1 cup	400
9	1085	Skim Milk	1 cup	25
10	1104	Chocolate Milk (1%)	1 cup	50

Breakfast Menu	Day 5	Feeding Figure - 500	Date	Site 1001
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Projected Servings**
1	18437	English Muffin	1/2	200
2	18009	Biscuit	1 oz.	300
3	8013	Cheerios Cereal	3/4 oz.	250
4	8156	Puffed Rice Cereal	5/6 oz.	250
5	9252	Fresh Pear, 4 per pound	1 each	100
6	19300	Jelly	1 Tbs.	500
7	1077	Whole Milk	1 cup	25
8	1082	Lowfat Milk (1%)	1 cup	400
9	1085	Skim Milk	1 cup	25
10	1104	Chocolate Milk (1%)	1 cup	50

Appendix H: Computer Exercise

Food Based Menus

Nutrient Standard – Grades 9-12

Using the computer software of your choice, modify the RDA age groupings to make a custom RDA Nutrient Standard for grades 9-12 (ages 14-17).

Use this sample site to analyze the menus to follow:

Urban High School
5656 Park Boulevard
Urbana, FX 45678
Manager: Robert Anderson
Phone: (555) 666-7777
Site #: 300

Appendix H: Computer Exercise

Food Based Menus

This weekly lunch menu has been planned for Site 300, Urban High School, Grades 9-12. The menus are reflective of Offer versus Serve. Therefore, the actual servings of each item may or may not equal the total feeding figure. Actual servings do not include à la carte sales.

Lunch Menu	**Day 1**	**Feeding Figure - 800**	**Date**	**Site 300**
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	5350	Chicken Nuggets	4 oz.	200
2	51233	Sweet & Sour Sauce	1 fl. oz.	200
3	50097	Chili Con Carne/Beans	1 svg.	100
4	50112	Pizza with Cheese	1 svg.	500
5	50029	Roll, Wheat	2 oz.	300
6	11057	Beans, Green, heated	1/2 cup	200
7	11399	Potato Puffs	1/2 cup	650
8	11935	Catsup Packet	9 grams	1000
9	9238	Peaches, Canned, juice	1/2 cup	500
10	9252	Pear, Whole	1 each	600
11	50225	Cookie, Oatmeal, new	1 each	600
12	1077	Whole Milk	1 cup	100
13	1082	Lowfat Milk (1%)	1 cup	150
14	1085	Skim Milk	1 cup	75
15	1104	Chocolate Milk (1%)	1 cup	400

Lunch Menu	Day 2	Feeding Figure - 800	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	5296	Turkey Roast	3 oz.	250
2	6125	Gravy	2 fl. oz.	500
3	51242	Nacho Sauce	2 fl. oz.	350
4	16103	Refried Beans	1/2 cup	350
5	19056	Tortilla Pieces	2 oz.	350
6	7022	Hot Dog, beef	2 oz.	200
7	18350	Bun	1	200
8	11744	Broccoli Spears w/Salt	1/2 cup	400
9	50177	Potatoes, Mashed	1/2 cup	400
10	2046	Mustard	5 grams	300
11	9003	Apple	1	400
12	50056	Peach Cobbler	1 svg.	700
13	1077	Whole Milk	1 cup	100
14	1082	Lowfat Milk (1%)	1 cup	150
15	1085	Skim Milk	1 cup	75
16	1104	Chocolate Milk (1%)	1 cup	400

Lunch Menu	Day 3	Feeding Figure - 800	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50075	Taco, beef	1 svg.	400
2	50099	Country Fried Steak	1 svg.	100
3	50141	Sandwich, BBQ Chicken	1 svg.	300
4	51241	Picante Sauce	1 fl. oz.	300
5	11687	Potato Wedge	1/2 cup	600
6	11124	Carrot Sticks	1/2 cup	200
7	9019	Applesauce	1/2 cup	100
8	9326	Watermelon	1/2 cup	600
9	50013	Bread, Banana	1 svg.	500
10	1077	Whole Milk	1 cup	100
11	1082	Lowfat Milk (1%)	1 cup	150
12	1085	Skim Milk	1 cup	75
13	1104	Chocolate Milk (1%)	1 cup	400

Lunch Menu	Day 4	Feeding Figure - 800	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50104	Lasagna	1 svg.	200
2	50239	Stir Fry Chicken	1 svg.	200
3	20047	Rice	1/2 cup	200
4	13313	Hamburger Patty	2 oz.	400
5	18351	Bun	1	400

6	11935	Catsup	9 grams	600
7	11252	Lettuce	1/4 cup	350
8	11529	Tomato	1/4 cup	350
9	50126	Coleslaw	1/2 cup	300
10	9200	Orange	1	500
11	50223	Gingerbread	1 svg.	500
12	1077	Whole Milk	1 cup	100
13	1082	Lowfat Milk (1%)	1 cup	150
14	1085	Skim Milk	1 cup	75
15	1104	Chocolate Milk (1%)	1 cup	400

Lunch Menu	Day 5	Feeding Figure - 800	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50244	Honey Lemon Chicken	2 thighs	300
2	51080	Fish Nuggets	4 oz.	200
3	50131	Taco Salad	1 svg.	300
4	11674	Potato, baked	5 oz.	700
5	11648	Sweet Potatoes	1/2 cup	100
6	1001	Butter	2 tsp.	700
7	9131	Grapes	1/2 cup	300
8	9269	Pineapple	1/2 cup	500
9	50059	Rice Pudding	1 svg.	300
10	1077	Whole Milk	1 cup	100
11	1082	Lowfat Milk (1%)	1 cup	150
12	1085	Skim Milk	1 cup	75
13	1104	Chocolate Milk (1%)	1 cup	400

Appendix H: Computer Exercise

Food Based Menu

This weekly breakfast menu has been planned for Site 300, Urban High School, Grades 9-12. The menus are reflective of Offer versus Serve; therefore, the actual servings may or may not equal the feeding figure. Actual servings do not include à la carte sales.

Breakfast Menu	Day 1	Feeding Figure - 300	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	18006	Bagel, Cinnamon Raisin	1	100
2	1017	Cream Cheese	2 Tbs.	100
3	8121	Oatmeal	1 cup	100
4	18036	Toast, mixed grain	1 slice	100
5	9411	Apple Juice	1/2 cup	250
6	9120	Grapefruit sections	1/2 cup	50
7	19300	Jelly	1 Tbs.	100
8	5021	Burrito, breakfast	1	100
9	1077	Whole Milk	1 cup	50
10	1082	Lowfat Milk (1%)	1 cup	150
11	1085	Skim Milk	1 cup	100

Breakfast Menu	Day 2	Feeding Figure - 300	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50201	Muffin Square, Oatmeal	1 svg.	200
2	8065	Rice Krispies Cereal	1 oz.	100
3	18048	Toast, Raisin	1 slice	100
4	1001	Butter	1 tsp.	100
5	1132	Scrambled egg	1	200
6	9215	Orange Juice	1/2 cup	200
7	9040	Banana, large	1	100
8	1077	Whole Milk	1 cup	50
9	1082	Lowfat Milk (1%)	1 cup	150
10	1085	Skim Milk	1 cup	100

Breakfast Menu	Day 3	Feeding Figure - 300	Date	Site 300
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50009	Biscuits, Cheese	2	50
2	50212	French Toast Strips	1 svg.	150
3	19129	Syrup, pancake	1 fl. oz.	150

4	51362	Sandwich, egg, ham & cheese	1	100
5	11391	Hash Brown Wedge	1/2 cup	250
6	9181	Cantaloupe, raw	1/2 cup	50
7	1077	Whole Milk	1 cup	50
8	1082	Lowfat Milk (1%)	1 cup	150
9	1085	Skim Milk	1 cup	100

Breakfast Menu	**Day 4**	**Feeding Figure - 300**	**Date**	**Site 300**
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50017	Cinnamon Roll	1	200
2	8093	Grits, plain	1 cup	100
3	18065	Toast, Wheat	1 slice	100
4	19300	Jelly	1 Tbs.	100
5	1129	Egg, hard cooked	1	200
6	9026	Apricots, canned	1/2 cup	100
7	9137	Grape Juice	1/2 cup	200
8	1082	Lowfat Milk (1%)	1 cup	150
9	1085	Skim Milk	1 cup	100
10	1077	Whole Milk	1 cup	50

Breakfast Menu	**Day 5**	**Feeding Figure - 300**	**Date**	**Site 300**
Item Number	**Food Code**	**Menu Item**	**Portion Size**	**Actual Servings**
1	50024	Pancakes	1 svg.	100
2	19129	Syrup	1 fl. oz.	100
3	18440	English Muffin	1	200
4	10802	Ham	1 oz.	200
5	1042	Cheese	1/2 oz.	200
6	8031	Frosted Mini Wheats Cereal	1 oz.	200
7	9298	Raisins	3 oz.	100
8	9019	Applesauce	1/2 cup	100
9	1082	Lowfat Milk (1%)	1 cup	150
10	1085	Skim Milk	1 cup	100
11	1077	Whole Milk	1 cup	50

Appendix I: Worksheet

Calculating the Nutrient Value of a Combined Breakfast And Lunch Using the Weighted Nutrient Analysis Procedure for NuMenus

1. Specify age/grade grouping _____.
2. Specify the breakfast and lunch RDA Nutrient Standards for the specific grade or age category.

	Breakfast	Lunch		Breakfast	Lunch
Calories	_____	_____	**Vitamin A**	_____	_____
Protein	_____	_____	**Vitamin C**	_____	_____
Calcium	_____	_____	**Fat**	_____	_____
Iron	_____	_____	**Saturated Fat**	_____	_____

3. Specify TOTAL feeding figures for reimbursable meals for the week of analysis.
   Breakfast (B) _____ Lunch (L) _____
4. Determine reimbursable meal participation percentages (%).
   $\frac{B}{B+L}$ x 100 = ____% (Breakfast) $\frac{L}{B+L}$ x 100 = ____% (Lunch)
5. Multiply each RDA Nutrient Standard for breakfast and lunch by the meal participation percentage from Step 4 to develop the weighted Nutrient Standard.

Breakfast					**Lunch**				
Calories	_____	X	_____	% = _____	**Calories**	_____	X	_____	% = _____
Protein	_____	X	_____	% = _____	**Protein**	_____	X	_____	% = _____
Calcium	_____	X	_____	% = _____	**Calcium**	_____	X	_____	% = _____
Iron	_____	X	_____	% = _____	**Iron**	_____	X	_____	% = _____
Vit. A	_____	X	_____	% = _____	**Vit. A**	_____	X	_____	% = _____
Vit. C	_____	X	_____	% = _____	**Vit. C**	_____	X	_____	% = _____
Fat	_____	X	_____	% = _____	**Fat**	_____	X	_____	% = _____
Sat. Fat	_____	X	_____	% = _____	**Sat. Fat**	_____	X	_____	% = _____

Add the weighted breakfast and lunch RDA Nutrient Standard figures for each nutrient to develop the combined weighted Nutrient Standard.

	B		L		Total			B		L		Total
Calories	_____	+	_____	=	_____		**Vitamin A**	_____	+	_____	=	_____
Protein	_____	+	_____	=	_____		**Vitamin C**	_____	+	_____	=	_____
Calcium	_____	+	_____	=	_____		**Fat**	_____	+	_____	=	_____
Iron	_____	+	_____	=	_____		**Sat. Fat**	_____	+	_____	=	_____

7. Perform a computer nutrient analysis of the weighted breakfast and lunch menu using weighted analysis and list below.

	Breakfast	Lunch		Breakfast	Lunch
Calories	_____	_____	**Vitamin A**	_____	_____
Protein	_____	_____	**Vitamin C**	_____	_____
Calcium	_____	_____	**Fat**	_____	_____
Iron	_____	_____	**Saturated Fat**	_____	_____

8. Multiply each nutrient value from Step 7 for the breakfast and lunch menu by meal participation percentages from Step 4 (same participation percentage as Step 5).

Breakfast						**Lunch**					
Calories	_____	X	_____	% =	_____	**Calories**	_____	X	_____	% =	_____
Protein	_____	X	_____	% =	_____	**Protein**	_____	X	_____	% =	_____
Calcium	_____	X	_____	% =	_____	**Calcium**	_____	X	_____	% =	_____
Iron	_____	X	_____	% =	_____	**Iron**	_____	X	_____	% =	_____
Vit. A	_____	X	_____	% =	_____	**Vit. A**	_____	X	_____	% =	_____
Vit. C	_____	X	_____	% =	_____	**Vit. C**	_____	X	_____	% =	_____
Fat	_____	X	_____	% =	_____	**Fat**	_____	X	_____	% =	_____
Sat. Fat	_____	X	_____	% =	_____	**Sat. Fat**	_____	X	_____	% =	_____

9. Add the weighted breakfast and lunch menu figures for each nutrient to develop the combined weighted nutrient values.

	B		L		Total		B		L		Total
Calories	_____	+	_____	=	_____	**Vitamin A**	_____	+	_____	=	_____
Protein	_____	+	_____	=	_____	**Vitamin C**	_____	+	_____	=	_____
Calcium	_____	+	_____	=	_____	**Fat**	_____	+	_____	=	_____
Iron	_____	+	_____	=	_____	**Sat. Fat**	_____	+	_____	=	_____

10. Compare the combined weighted nutrient analysis of a breakfast and lunch meal to the combined weighted RDA standard for a breakfast and lunch. Evaluate and adjust menus as needed.

Weighted RDA Standard		**Weighted Meal Analysis**	
Calories	_____	**Calories**	_____
Protein	_____	**Protein**	_____
Calcium	_____	**Calcium**	_____
Iron	_____	**Iron**	_____
Vit. A	_____	**Vit. A**	_____
Vit. C	_____	**Vit. C**	_____
Fat	_____	**Fat**	_____
Sat. Fat	_____	**Sat. Fat**	_____

Appendix J: Activity

Combined Analysis of Breakfast and Lunch

Using the analysis of the lunch menu in Appendix F and the breakfast menu in Appendix G, do a combined weighted analysis of breakfast and lunch.

Appendix K: Nutrient Standard Menu Planning

Checklist for Accurate Computer Analysis

District _____ Menu Planned _____

Dates _____ Checklist Completed by _____

	Yes	No	Notes
Daily Menu Entry: Compare to printed menu and menu production worksheets.			
1. The menu entered is the same as the menu planned.			
• All planned menu items are entered.			
• All standard menu items for all meals are entered, e.g., milk.			
• All reasonable condiments are entered, e.g., mustard, salad dressing.			
• Only foods of minimal nutritional value (FMNV) that are part of a menu item have been entered.			
2. The correct item has been selected from the database.			
• Cooked weight/serving size OR ready-to-cook weight/serving size was selected correctly.			
• Correct cooking method was selected.			
• Correct form of item was selected, e.g., fresh, frozen, or canned.			
• Correct packing medium was selected, e.g., canned in juice or light syrup; frozen with added sugar or plain.			
• Purchased product selected matches item planned and has been added to database.			
• Standardized recipe selected is the one planned and has been added to the database.			
3. The appropriate measurement was used.			
• Fluid ounces (fl. oz.) are not confused with weight ounces (oz.).			
• Serving sizes entered match sizes planned, recipe yields and vendor products.			
• Serving sizes reflect edible portion per USDA's Buying Guide.			
Planners: Complete Daily Menu Entry Checklist before going on to Weekly Average Printout Checklist.			

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Appendix K: Nutrient Standard Menu Planning

Checklist for Accurate Computer Analysis (continued)

	Yes	No	Notes
Weekly Average Printout Review:			
1. The correct grade/age grouping was selected.			
2. The correct nutrients were selected for analysis.			
• All nutrients for menu accountability were selected (KCAL, Protein, Calcium, Iron, Vitamins A, C, Fat, Saturated Fat).			
• Other nutrients were selected for analysis (Cholesterol, Sodium, Dietary Fiber and Carbohydrate) plus optional nutrients as desired.			
3. The analysis meets the nutrient standards/targets.			
• A percent nutrient-to-standard is listed for each nutrient. (If not, calculate it.)			
• All standards are met OR are within acceptable tolerance level.			
• Percent of calories from fat and saturated fat meets the standard OR is within acceptable tolerance level.			
4. The weekly average is within normal range.			
• There are no gross errors - high or low.			
• The analysis is comparable to similar week's analysis.			
Nutrition Specialists: and **If there are errors in number 4, check the recipe vendor analysis.**			

Appendix K: Nutrient Standard Menu Planning

Checklist for Accurate Computer Analysis (continued)

	Yes	No	Notes
Recipe Review: Use standardized recipes.			
1. The recipe is standardized.			
• The recipe has been checked for yield.			
• The recipe is as the production unit will use it.			
• All usual and expected ingredients are listed.			
• Correct type of measure and amount is entered.			
2. Cooked weight OR serving size (or ready-to-cook if available) is used.			
3. The results are reasonable.			
• There are no gross errors - high or low.			
• The analysis is comparable to similar recipes in the database.			
Nutrition Specialists: If there are errors in number 4, check the recipe and vendor analysis.			
Vendor Analysis Review: Use certified vendor product analysis.			
1. The portion entered is the same as the portion provided in the analysis.			
2. Cooked weight OR serving size (or ready-to-cook if available) is used.			
• There are no gross errors - high or low, OR nutrients listed which are not usually associated with the food item (i.e., fiber in meat).			
• The analysis is comparable to similar products in the database.			
• Conversion of figures from milligrams (mg) to grams (g) has been made correctly.			
• Conversion of figures on nutrition labels has been completed using the software.			

Appendix L: Instructor Outline

Lesson 9: Nutrient Analysis

Lesson Time

Approximately 2 1/2 hours

Equipment

- ✔ Slide projector
- ✔ 3 screens
- ✔ Overhead projector
- ✔ Computer

Materials

- ✔ Slides
- ✔ Transparencies:
  - T-1 Activity – Appendix A: Recipe Variations
  - T-2 Activity – Appendix I: Worksheet for Combined Analysis of Breakfast and Lunch
- ✔ Activity – Appendix J: Combined Analysis of Breakfast and Lunch

Lesson Plan Outline

I. Interest Building Strategy/Set
   A. In Lesson 7: ABCs of Menu Planning, you planned menus that you **think** will be healthy and meet the nutrition goals for healthy meals. You considered all of the Dietary Guidelines for Americans and the menu planning ABCs. But how do you know whether your menu meets the Nutrient Standards?

II. Review Competencies

III. Purpose
   A. The purpose of this lesson is to show you how a nutrient analysis of recipes and menus is done. For those selecting NuMenus, you must be able to do the analysis accurately yourself. For those selecting Assisted NuMenus, you must understand well enough to confirm the work of your outside consultant. For those selecting Food Based Menus, you will want to understand well enough to follow the analysis and findings of the reviewing state agency.

IV. Transfer
   A. None

V. Instruction
   A. Review recipe nutrient analysis capabilities.
      1. USDA quantity recipes, especially variations.
   B. Discuss the process of adding a recipe to the local database for nutrient analysis.
      1. Steps to create a recipe:
         a) Review products not in NNDCNP or local database.
         b) Enter new recipes and processed foods into local database (save).
         c) Serving recipe yield.
         d) Serving size.
         e) Serving description.
         f) "Look-up" food ingredients.
         g) Use Yield Factor method.
         h) Enter preparation directions.
         i) Save recipe to local database.
         j) Complete a nutrient analysis.
         k) Provide disclosure.
         l) Activity: Review with a partner and then name the ten steps to create a recipe.
   C. Steps to create a recipe variations.
      1. Follow the same steps as above, but name and save it as a new recipe.
      2. Demonstration: Appendix A: Add Beef Stir-Fry Variation as a new recipe.
   D. Demonstration: Appendix B: Add Spaghetti Sauce recipe to the local database.
   E. Demonstration – Appendix C: Create Recipes for Purchased Foods.
      1. Demonstrate on the computer the steps to create recipes in the local database for:
         a) Chicken nuggets
         b) Cake mix
   F. Demonstration – Appendix D: Creating a Theme Bar Recipe for NuMenus.
      1. Demonstrate on the computer the steps to create recipes for:
         a) Salad Bar
         b) Pasta Bar
   G. Caution participants about the common errors in data entry of menus.
   H. Review weighted nutrient analysis rationale.
   I. Process Approach to Menu Planning
      1. Enter specific menu plan.

2. Perform nutrient analysis of menus to obtain weekly averages and compliance to the Nutrient Standard.
3. Evaluate and update menu plan to achieve the Nutrient Standard goals.
4. Print menu plan reports.

J. Review entering menu plans for nutrient analysis and compliance to nutrient standards.
1. Demonstration: Appendix F: NuMenus Lunch Menu
2. Demonstration: Appendix G: NuMenus Breakfast

K. Discuss key steps to modifying menus using the concepts of:
1. Plan menu
2. Purchasing
3. Modifying recipes and preparation techniques
4. Getting students to consume the meals

L. Discuss how to adjust for future menus.
1. Adjust production figures
2. Evaluate the nutrient analysis
3. Modify current menus and products
4. Introduce new menus and products
5. Encourage healthy choices

M. Discuss the combined weighted breakfast and lunch analysis and how to compare it to an adjusted Nutrient Standard.
1. Adjust projected servings
2. Evaluate nutrient analysis
3. Modify current menus and products
4. Introduce new menu items and products
5. Encourage healthy choices
6. Activity – Appendix J: Combined Analysis of Breakfast and Lunch

VI. Guided Practice
A. Various demonstrations
B. Activity - Appendix I: Combined Analysis of Breakfast and Lunch

VII. Individual Practice
A. Optional computer exercises for recipes, Appendix E.
B. Optional computer exercises for menus, Appendix H.

VIII. Closure
A. This lesson was only an introduction to nutrient analysis. To become an expert, you need specific training on your selected USDA-approved software and lots of practice!
B. Review competencies.

IX. Back on the Job...

A. An accurate analysis is critical to the success of NuMenus and Assisted NuMenus. It will also be important in determining how well your Food Based Menus meet the nutrition goals. Understanding the process of weighted nutrient analysis is the key to your success with all menu systems.

X. Appendices

A. Appendix A: Recipe Variations
B. Appendix B: Demonstration – Adding Recipes to the Local Database
C. Appendix C: Demonstration – Create Recipes for Purchased Foods
D. Appendix D: Theme Bar Recipes
E. Appendix E: Computer Exercise
F. Appendix F: Demonstration – NuMenus Lunch Menu
G. Appendix G: Demonstration – NuMenus Breakfast Menu
H. Appendix H: Computer Exercise – Food Based Menus
I. Appendix I: Worksheet for Combined Analysis of Breakfast and Lunch
J. Appendix J: Combined Analysis of Breakfast and Lunch
K. Appendix K: Checklist for Accurate Computer Analysis
L. Appendix L: Instructor Outline

Calculating the Nutrient Value of a Combined Breakfast And Lunch Using the Weighted Nutrient Analysis Procedure for NuMenus

1. Specify age/grade grouping 7-10.
2. Specify the breakfast and lunch RDA Nutrient Standards for the specific grade or age category.

	Breakfast	Lunch		Breakfast	Lunch
Calories	500	667	**Vitamin A**		
Protein			**Vitamin C**		
Calcium			**Fat**	17	22
Iron			**Saturated Fat**		

3. Specify TOTAL feeding figures for reimbursable meals for the week of analysis.
4. Breakfast (B) 2500 Lunch (L) 5000
5. Determine reimbursable meal participation percentages (%).

$\frac{B}{B+L}$ x 100 = 33.3% (Breakfast) $\frac{L}{B+L}$ x 100 = 66.6% (Lunch)

5. Multiply each RDA Nutrient Standard for breakfast and lunch by the meal participation percentage from Step 4 to develop the weighted Nutrient Standard.

Breakfast $\frac{B}{B+L}$					**Lunch** $\frac{L}{B+L}$				
Calories	500	33.3	% =	166.5	**Calories**	667	66.7	% =	444
Protein		X	% =		**Protein**		X	% =	
Calcium		X	% =		**Calcium**		X	% =	
Iron		X	% =		**Iron**		X	% =	
Vit. A		X	% =		**Vit. A**		X	% =	
Vit. C		X	% =		**Vit. C**		X	% =	
Fat	17	X 33.3	% =	5.66	**Fat**	22	X 66.7	% =	14.6
Sat. Fat		X	% =		**Sat. Fat**		X	% =	

6. Add the weighted breakfast and lunch RDA Nutrient Standard figures for each nutrient to develop the combined weighted Nutrient Standard.

	B		L		Total		B		L		Total
Calories	166.5	+	444	=	610.5	**Vitamin A**		+		=	
Protein		+		=		**Vitamin C**		+		=	
Calcium		+		=		**Fat**	5.66	+	14.6	=	20.26
Iron		+		=		**Sat. Fat**		+		=	

7. Perform a computer nutrient analysis of the weighted breakfast and lunch menu using weighted analysis and list below.

	Breakfast	Lunch		Breakfast	Lunch
Calories	454	624	**Vitamin A**		
Protein			**Vitamin C**		
Calcium			**Fat**	11.48	20.80
Iron			**Saturated Fat**		

8. Multiply each nutrient value from Step 7 for the breakfast and lunch menu by meal participation percentages from Step 4 (same participation percentage as Step 5).

Breakfast					**Lunch**				
Calories	454 X	33.3	% =	151	**Calories**	624 X	66.7	% =	416
Protein	X		% =		**Protein**	X		% =	
Calcium	X		% =		**Calcium**	X		% =	
Iron	X		% =		**Iron**	X		% =	
Vit. A	X		% =		**Vit. A**	X		% =	
Vit. C	X		% =		**Vit. C**	X		% =	
Fat	11.48 X	33.3	% =	3.8	**Fat**	20.8 X	66.7	% =	13.87
Sat. Fat	X		% =		**Sat. Fat**	X		% =	

9. Add the weighted breakfast and lunch menu figures for each nutrient to develop the combined weighted nutrient values.

	B		L		Total		B		L		Total
Calories	151	+	416	=	567	**Vitamin A**		+		=	
Protein		+		=		**Vitamin C**		+		=	
Calcium		+		=		**Fat**	3.8	+	13.87	=	17.67
Iron		+		=		**Sat. Fat**		+		=	

10. Compare the combined weighted nutrient analysis of a breakfast and lunch meal to the combined weighted RDA standard for a breakfast and lunch. Evaluate and adjust menus as needed.

Weighted RDA Standard		**Weighted Meal Analysis**	
Calories	610.5	**Calories**	567
Protein		**Protein**	
Calcium		**Calcium**	
Iron		**Iron**	
Vit. A		**Vit. A**	
Vit. C		**Vit. C**	
Fat	20.26	**Fat**	17.67
Sat. Fat		**Sat. Fat**	

Lesson 9: Nutrient Analysis

Competencies

Participants will be able to:

1. List the steps to create a new recipe and add it to the local database.
2. Adjust a weekly menu using appropriate techniques to meet the nutrition goals for NuMenus or Food Based Menus.